



SINCE 1893

Electronic pressure switch MDR 2i

FOR COMPRESSORS

PUMPS ...



www.condor-cpc.com

Pressure switch MDR 2i

...with clear LED display



MDR 2i

Simple operation and precise, convenient programming

The electronic pressure switch is suitable for a wide range of industrial and technical processes, e.g. for pressure monitoring and control of compressors and pumps, in mechanical engineering and in plant construction.

The MDR 2i is fitted with a coupling for an external pressure relief valve and a 3-digit LCD display with various functions such as operating hours counter, alarm output, etc.

Optionally (being planned), the pressure switch can be fitted with an integral pressure relief valve.

The two-point control permits precise **and convenient programming** of the switching functions (switching point / switch-back point), adjustable in bar or psi (accuracy 0.1 bar / 1 psi).

Because of the wide range of pressure switch versions, please contact us if you have questions on a special application or have technical requirements. As a manufacturer of pressure switches and controls, we offer a wide range of services including standard and customer-specific solutions for individual applications.

Highlights & features

- AC version
- Voltage 85...265 V
- Switching function: 2 NO contacts (2-pole)
- Pressure ranges ≤16 bar
- Integral pressure relief valve (being planned)
- Coupling for external pressure relief valve
- Two-point control – precise and convenient programming (switching point / switch-back point), adjustable in bar or psi (accuracy 0.1 bar or 1 psi).
- Die-cast aluminium flange with up to 4 connection options
- Clear, 3-digit display
- Various functions such as e.g. operating hours counter, alarm output (optional), incl. alarm indication in the display, etc.
- High reliability
- Operating media: Neutral gaseous and liquid fluids
- Internal temperature monitoring in the switch to prevent excess temperatures (no display for customer)
- Protection class (to EN 60529): IP 54
- Housing: Polyamide
- Circuit board for additional functions (components prepared for)

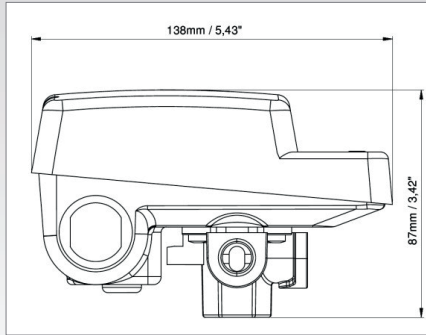
Type overview MDR 2i - ceramic pressure sensor, pressure connection: G1/4" female thread; flange connection = die-cast aluminium

Designation	Description	On / Off Control button	Pressure range P _{OFF} in bar	Tolerance	Flange	Weight (in g)	Part no.
MDR 2i	Electronic pressure switch, 2-pole, without pressure relief valve, for pumps and compressors	--	0.1 – 16.0	± 0.1 bar	F4 1/4" alum.		293613

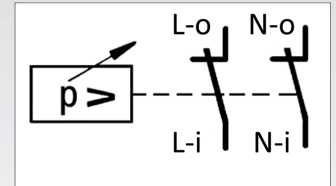
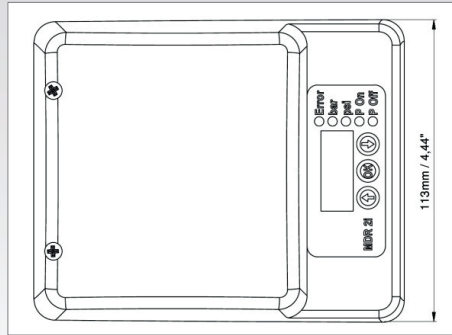
Optional fittings

Designation	Description
Alarm output	Alarm relay (changeover contact), freely configurable function. Relay output used as signal to external controller.

Dimensions / circuit diagram of MDR 2i



Pressure switch MDR-2i



Circuit diagram

Technical data of MDR 2i

Rated operating current I_e ($U_e = 250\text{ V, AC 3}$)	16 A
Rated voltage	85...265 V
Rated frequency	50 / 60 Hz
Rated insulation voltage U_i	500 V
Dielectric strength	1500 VAC
Protection class to EN 60529:	IP 54 / IP 41
Soiling degree	3
Protection class	I
Mechanical service life	> 1 x 10 ⁶
Max. switching frequency, mechanical cycles / h	300
Electrical service life (AC 3)	> 1 x 10 ⁵
Permissible medium temperature (air)	-20...+70°C
Ambient temperature	-5... 50°C
Contact material	AgSnO ₂
Co-ordination type	2
Connection data (line & motor)	0.08 – 4 mm ²

Technical data of MDR 2i

Medium	Air, water
Voltage type	Single-phase voltage
Type	Electronic
Voltage	≤ 250 V
Contact function	2 NC contacts
Pressure adjustment	Pressure difference adjustment (standard)
Pressure range	Switch-off pressure: Switch-on pressure: The pressure range can be reduced in the "Limits" menu.
Pressure coupling (flanged version)	0.4 – 16 bar / 6 - 232 psi 0.2 – 15.8 bar / 3 - 229 psi
Motor switching capacity	G1/4" female thread; flange connection = die-cast aluminium
	2.2 kW

Technical data of MDR 2i

Additional contact / pressure relief valve (100,000 cycles)

240 VAC 12	5 A
30 VDC 12	5 A
Contact material	AgNi90/10, AgSnO ₂
Connection data	0.08 – 2.5 mm ²

Media resistance of MDR 2i

A detailed overview of the media resistance of all pressure switches in the form of a selection table is provided on our website. Please observe the notes given for the table.

Ratings (UL 508, 100,000 cycles)

Load:	
120 VAC	
240 VAC	
120/240 VAC, 15 FLA, 90 LRA – Definite Purpose	
Wire range: 28 ...12 AWG, Cu, 75°C	
AUX Load:	
240 VAC/30 VDC	5 A resistive
B300	
Wire range: 28 ...12 AWG, sol/STR, Cu, 75°C	

Installation as well as the IP protection of the pressure switch must be done by the customer. In case of damage or faults due to incorrect installation, the manufacturer


cannot be held responsible and accepts no liability. Pressure is adjusted on-site by the customer.



Electronic pressure switch MDR 2i

Software description



Operation, displays	Button	Display	LED
Pressure gauge 		System pressure in bar (00.0 - 16.0); System pressure in psi (000 - 232)	The selected unit is indicated with an additional LED.
Display of switch-on pressure	↓	"P On"	"P On"
Changing switch-on pressure	↓ "OK" ↓ ↓↑ "OK"	Adjusted switch-on pressure "888" Adjusted switch-on pressure (flashes) Adjustment range new switch-on pressure	"P On" flashes
Display of switch-off pressure	↑	Adjusted switch-off pressure	"P On"
Changing switch-off pressure	↑ "OK" ↑ ↓ ↑ "OK"	"888" Adjusted switch-off pressure Adjusted switch-on pressure (flashes) Adjustment range new switch-off pressure	"P On" flashes
Standby	"OK" (3 sec)	Standby / ready for operation	
Setup menu	↓↑ ↓ ↑ "OK"	'5Et' => SETUP scroll through confirm selection 'End'	-
Change pressure unit		'PrU' => Pressure unit	"bar" or "psi" flashes
Pressure relief valve – Adjustment of opening time when compressor starts		'dOn' => discharge On	
Pressure relief valve – Adjustment when compressor stops		'dOf' => discharge OFF	
Standby		'5tb' => Standby	
Dry run		'drY' => dry run	
Maximum runtime		'run' => max. runtime	
Switching cycles – time		'CYt' => Cycle time	
Switching cycles – number		'CYc' => Cycle count	
Service adjustments – switching cycles & runtimes		'5Er' => Service	
Runtime relay 1		'5t1' => Service time relay 1	
Runtime relay 2		'5t1' => Service time relay 2	
Switching cycles relay 1		'5C1' => Service counter relay 1	
Switching cycles relay 2		'5C1' => Service counter relay 2	
Runtimes and switching cycles		't-C' => time and counters	
"Power On" time		'tPo' => time Power on	
Main relay time		'tr1' => time relay 1	
Auxiliary relay time		'tr2' => time relay 2	
Power switching cycles		'CPo' => Counter Power	
Main relay switching cycles		'Cr1' => Counter relay 1	
Auxiliary relay switching cycles		'Cr2' => Counter relay 2	
Show pressure sensor offset		'5H0' => SHOW Offset	
Show sensor scaling factor		'5H0' => SHOW Scale	
Raw value of pressure sensor		'A-d' => A/D value	Display of A/D converter value (raw value) (3 sec)
Menu up / exit (changes one menu level upwards)		'End' => End	
Software version		'50F' => SOFTWARE	Shows the software version for 3 sec, e.g. "1.28"

Electronic pressure switch MDR 2i

Software description



Operation, displays	Button	Menu item / display	LED / display
Specification of permitted pressure ranges and pressure relief valve function (password-protected)		L1N' => LIMits	
Minimum cut-in pressure		'POn' => minimum pressure 'On' pressure value	
Maximum cut-out pressure The value is adjustable between 00.4 and 16.0 bar or 006 and 232 psi.		'POF' => maximum pressure OFF value	
Minimum hysteresis (difference between cut-in and cut-out pressure) The value is adjustable between 00.2 and 01.4 bar or 003 and 020 psi.		'PhY' => minimum hysteresis pressure setting	
Specify the unloader function	↓ ↑ 'OK'	'ULu' = UnLoader valve 'nO' (normally Open) 'nC' (normally Closed) Selection completed	
Exit from submenu		'End' => End	

Error message / Maintenance note	Error due to external influences
If an error occurs, this is reported with a flashing message on the display and the red error LED lights up. The error can be acknowledged by pressing 'OK'.	
E01 Dry run	The adjusted switch-on pressure was not reached after the start in ["drY" min]. The relay outputs are de-energised. This error must be acknowledged by pressing 'OK'.
E02 Max. runtime	The adjusted switch-off pressure was not reached after the start in ["run" min]. The relay outputs are de-energised. This error must be acknowledged by pressing 'OK'.
E03 Max. switching cycles	During the monitoring time of ["CYt" min] the relay switches more than ["CYt" times]. The relay outputs remain in function. This error must be acknowledged by pressing 'OK'.
E11 Negative pressure at sensor	The pressure at the sensor falls below the sensor's min. permissible value. The relay outputs remain in function. Error acknowledges itself if value returns within the valid range.
E12 Overpressure at sensor	The pressure on the sensor exceeds the sensor's max. permissible value. The relay outputs are de-energised. Error acknowledges itself if value returns within the valid range.
Error in sensor	
E30 Pressure sensor error	The pressure sensor (or the A/D converter) does not provide a valid value. The relay outputs are de-energised. Error acknowledges itself if the communication to the sensor is OK again.
E31 Pressure calibration error – Offset value	Offset value outside the valid range. The relay outputs are de-energised. Recalibrate offset.
E32 Pressure calibration error – Scale value	Scale value outside the valid range. The relay outputs are de-energised. Recalibrate scale value.
E40 Temperature sensor error	The temperature sensor does not supply a valid value. The relay outputs are de-energised. Error acknowledges itself if the communication to the sensor is OK again.
E50 Error µController EEPROM	There is no valid data set in the EEPROM. The relay outputs are de-energised. Please contact the service.
Maintenance notes	
E91 Maintenance interval reached	The adjustable max. switching cycles of relay 1 have been exceeded. Servicing the unit is required due to many starts. The relay outputs remain in function. To reset the error, increase or disable the service value or delete the switching cycle counter for relay 1.
E92 Maintenance interval reached	The adjustable max. switching cycles of relay 2 have been exceeded. Service of the valve is required due to many starts. The relay outputs remain in function. To reset the error, increase or disable the service value or delete the switching cycle counter for relay 2.
E93 Maintenance interval reached	The adjustable max. runtime of relay 1 has been exceeded. Servicing the unit is required due to many hours of operation. The relay outputs remain in function. To reset the error, increase or disable the service value or delete the operating hours counter for relay 1.
E94 Maintenance interval reached	The adjustable max. runtime of relay 2 has been exceeded. Service of the valve is required due to many operating hours. The relay outputs remain in function. To reset the error, increase or disable the service value or delete the operating hours counter for relay 2.

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CONDOR – INVENTOR OF THE PRESSURE SWITCH



MDR-N Pressure switch for vacuum, pneumatic, and hydraulic systems



MDR-P Mini-sized pressure switch for OEM customers



MDR 3 High-performance pressure switch for 3-phase voltage

Condor riding ground controls for optimum grounds



Solving your problems is our business.

Our team consults you competently about every possibility for solving your specific problem. Simply contact us. We provide professional, targeted, and solution-oriented support when implementing your project in accordance with your specifications.

Since four generations filled with passion, pioneering spirit, and innovative power, Condor has been developing market-oriented solutions in the fields of pressure and control technology, with a focus on the compressor and pump industries.

For further information please contact us, or visit our website – www.condor-cpc.com.



YouTube

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